

45. An apparatus for transmitting data signals over a telephone landline or a cellular telephone system and for transmitting voice signals over the telephone landline or the cellular telephone system, comprising:
- a modem;
  - a data access arrangement including means for operatively connecting to the telephone landline;
  - a microcontroller;
  - a memory operatively connected to said microcontroller;
  - protocol software in said memory for controlling the operation of the apparatus;
  - a cellular telephone interface for operatively connecting to a cellular telephone;
  - means for providing voice communications for transmission over the telephone landline or the cellular telephone system;
  - a first analog switch operatively connecting a first terminal to either said means for providing voice communications or said modem as decided by the microcontroller;
  - a second analog switch operatively connecting said data access arrangement and said cellular telephone interface or not as decided by the microcontroller; and
  - a third analog switch operatively connecting the first terminal of the first analog switch with said data access arrangement or not as decided by the microcontroller.
46. The apparatus of claim 45 wherein said protocol software includes means for retrying the connection phase for a total of six tries.
47. The apparatus of claim 46 wherein said protocol software includes means for retransmitting data packets, after successful connection phase, for a total of eighteen tries.
48. The apparatus of claim 47 wherein said protocol software includes means to suspend transmission to wait for the recovery of loss of carrier.

49. The apparatus of claim 48 wherein said protocol software includes means to switch the mode of operation of said modem from synchronous to asynchronous if carrier loss occurs during transmission in the synchronous mode of operation and to switch back to the synchronous mode upon recovery of the carrier.

50. An apparatus for transmission data signals over a telephone landline, a wireless radio frequency network or a cellular telephone system and for transmitting voice signals over the telephone landline, the wireless radio frequency network or a cellular telephone system, comprising:

a modem;

a data access arrangement including a means for operatively connecting to the telephone landline;

a microcontroller operatively connected to said modem;

a memory operatively connected to said microcontroller;

protocol software in said memory for controlling the operation of the apparatus;

a cellular telephone interface for operatively connecting to a cellular telephone;

a radio frequency interface for connecting to a radio frequency transceiver unit;

means for providing voice communication using a microphone and speaker;

a first analog switch operatively connecting a first terminal to either said means for providing voice communications or said modem as decided by the microcontroller;

a second analog switch operatively connecting said data access arrangement and said cellular telephone interface or not as decided by the microcontroller; and

a third analog switch operatively connecting the first terminal of the first analog switch with either said data access arrangement or said radio frequency interface as decided by the microcontroller.

51. The apparatus of claim 50 wherein said protocol software includes means for retrying the connection phase for a said number of tries.

52. The apparatus of claim 51 wherein said protocol software includes means for retransmitting data packets, after successful connection phase, for a said number of

tries.

53. The apparatus of claim 52 wherein said protocol software includes means to suspend transmission to wait for the recovery of loss of carrier.
54. The apparatus of claim 53 wherein said protocol software includes means to switch the mode of operation of said modem from synchronous to asynchronous if carrier loss occurs during transmission in the synchronous mode of operation and to switch back to the synchronous mode upon recovery of the carrier.
55. An apparatus for transmission of data signals over ordinary telephone line service or a cellular telephone system and for transmitting voice signals over the telephone line service, the radio frequency or the cellular telephone system, comprising:
- a modem;
  - a data access arrangement operatively connected to said modem and including a means to operatively connect to a telephone line;
  - a microcontroller operatively connected to said modem;
  - a memory operatively connected to said microcontroller;
  - protocol software in said memory for controlling the operation of the apparatus;
  - a cellular telephone interface for connecting to a cellular telephone unit;
  - radio frequency interface for connecting to radio frequency telemetry modules or packet radios;
  - means for providing voice communication using a microphone and speaker;
  - a first analog switch operatively connecting a first terminal to either said means for providing voice communications or said modem as decided by the microcontroller;
  - a second analog switch operatively connecting said data access arrangement and said cellular telephone interface or not as decided by the microcontroller;
  - a third analog switch operatively connecting the first terminal of the first analog switch with either said data access arrangement or said radio frequency interface as decided by the microcontroller; and

a fourth analog switch operatively connecting a remote device to said data access arrangement or not as decided by the microcontroller.

56. The apparatus of claim 55 wherein said protocol software includes means for retrying the connection phase for a total of six tries over a cellular telephone system, radio frequency network or a telephone line service.
57. The apparatus of claim 56 wherein said protocol software includes means for retransmitting data packets, after successful connection phase, for a total of eighteen tries over a cellular telephone system, radio frequency network or a telephone line service.
58. The apparatus of claim 57 wherein said protocol software includes means to suspend transmission from the apparatus to wait for the recovery of loss of carrier over a cellular telephone system, radio frequency network or a telephone line service.
59. The apparatus of claim 58 wherein said protocol software includes means to switch the mode of operation of said apparatus from synchronous to asynchronous if carrier loss occurs during transmission in the synchronous mode of operation and to switch back to the synchronous mode upon recovery of the carrier over a cellular telephone system, radio frequency network or a telephone line service.
60. An apparatus for transmission of standard or fax data signals over ordinary telephone line service, radio frequency network, satellite system or a cellular telephone system and for transmitting voice signals over the telephone line service, the radio frequency network, the satellite system and the cellular telephone system, comprising:  
a modem;  
a data access arrangement operatively connected to said modem and including a means to operatively connect to a telephone line;  
a microcontroller operatively connected to said modem;

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a read-only memory operatively connected to said microcontroller;  
protocol software in said read-only memory in the form of firmware for controlling the operation of the apparatus;  
a cellular telephone interface for connecting said microcontroller to a cellular telephone unit;  
a radio frequency interface for connecting said microcontroller to a radio frequency telemetry module or packet radio unit;  
means for providing voice communication using a microphone and speaker over the telephone line, the wireless radio frequency network, the satellite system or the cellular telephone system;  
a first analog switch operatively connecting a first terminal to either said means for providing voice communications or said modem as decided by the microcontroller;  
a second analog switch operatively connecting said data access arrangement and said cellular telephone interface or not as decided by the microcontroller;  
a third analog switch operatively connecting the first terminal of the first analog switch with either said data access arrangement or said radio frequency interface as decided by the microcontroller; and  
a fourth analog switch operatively connecting said satellite system to said data access arrangement or not as decided by the microcontroller.

61. The apparatus of claim 60 wherein said protocol software includes means for retrying the connection phase for a total of six tries over a cellular telephone system, radio frequency network, satellite system or a telephone line service.
62. The apparatus of claim 61 wherein said protocol software includes means for retransmitting data packets, after successful connection phase, for a total of eighteen tries over a cellular telephone system, radio frequency network, satellite system or a telephone line service.
63. The apparatus of claim 62 wherein said protocol software includes means to suspend